

ETH Risk Day 2022

Distributed Ledger Technology and Digital Assets – myth or fact?

Mathias Studach
16. September 2022





Mathias Studach

Head of Risk, Finance, and Organizational Development

Mathias Studach joined SIX Digital Exchange in July 2018 as Head Finance, Risk, and Organizational Development. He has a wealth of experience in financial markets, especially in the management and implementation of enabling-technologies, strategy and controlling. In his previous role as Head Technology at a Swiss private bank in Zurich, he was responsible for the digital transformation of the company and the technological implementation of their Blockchain Asset Management Solution.

Agenda

01

**About
Innovation
and
Disruption**

02

**SDX
Journey**
*"innovation isn't
a straight path"*

03

Status Quo
*"the world's first
DLT-enabled
digital asset
exchange"*

04

Outlook
*"not yet there...
what is needed
to leverage full
potential"*

01

**About
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02

**SDX
Journey**
*“innovation isn’t
a straight path”*

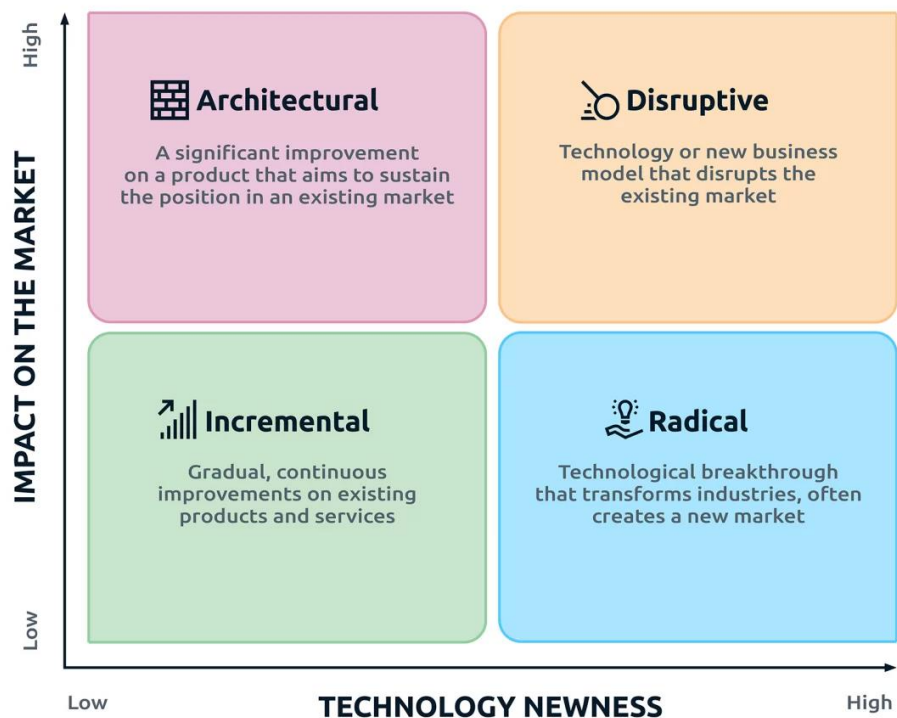
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What is innovation?



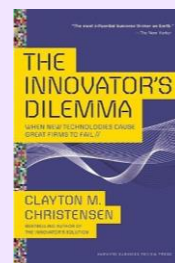
Incremental Innovation



Radical Innovation

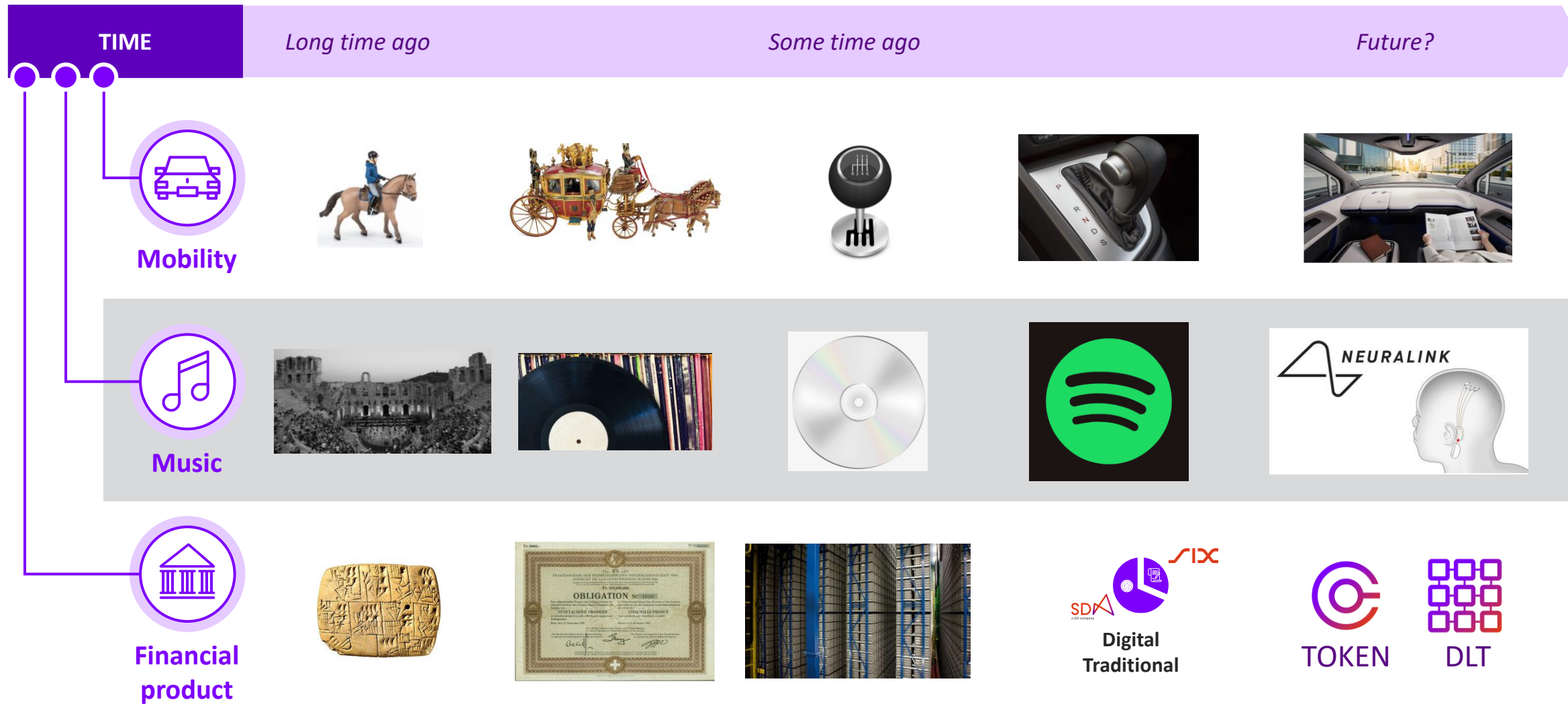


Disruptive Innovation



The term “**Disruptive Innovation**” was first coined and defined by Clayton M. Christensen, famous for his seminal book “The Innovator's Dilemma” published in 1997.

Past disruptions through innovation



Where the Distributed Ledger Technology believes it can add value in the capital markets

Shared source of truth across multiple parties – no more silos. Starting from the securities registry *(WEF/BofA)*

Atomic Trading & Settlement reducing counterparty and settlement risk *(KPMG)*

Automate & Synchronize business processes such as corporate actions across entities using smart contracts. Reduce manual interventions, risk, cost. *(WEF/Bundesbank)*



Tokenization for faster and lower cost asset transfer and increased liquidity for niche markets *(WEF)*

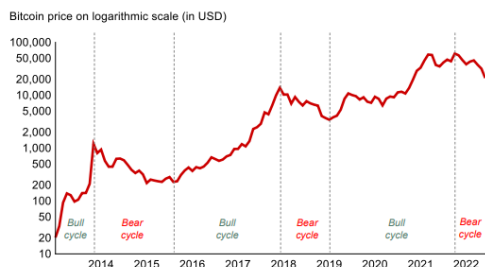
Peer-to-peer structure reducing intermediaries leading lower cost *(Bundesbank)*

No centralized Governance needed as trust is given within the network *(Bitcoin/Ethereum)*

DLT: The future is distributed - KPMG Global (home.kpmg)
The Future of SME Financing (six-group.com)
WEF_Digital_Assets_Distributed_Ledger_Technology_2021.pdf (weforum.org)
Distributed-Ledger-Technologien im Zahlungsverkehr und in der Wertpapierabwicklung: Potenziale und Risiken (bundesbank.de)
BofA - Exchanging Views 12400593 12400593 (bami.com)
Ethereum Governance | ethereum.org

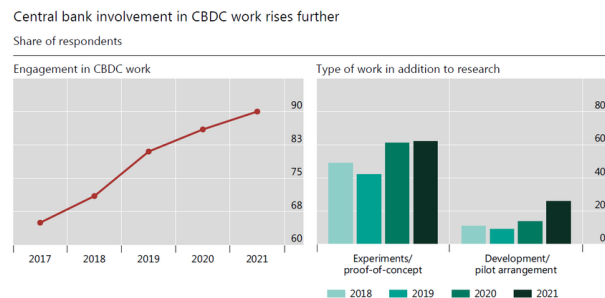
Will DLT disrupt existing financial markets and what does it mean for incumbents?

Digital assets still move in strong hype cycles yet with a positive overarching trend



Source: Bain

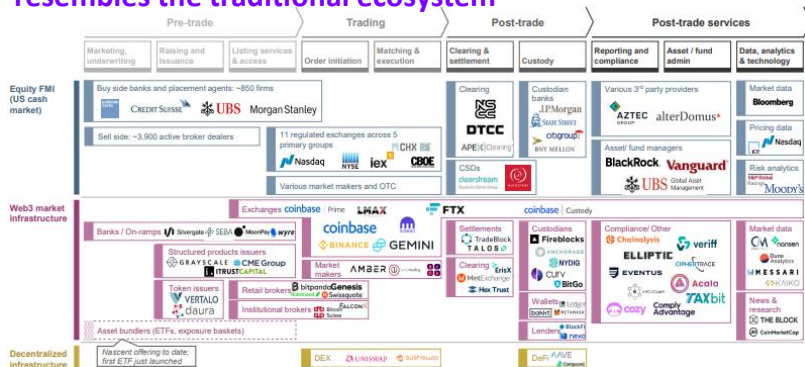
90% of Central Banks are researching the utility of CBDCs



© Bank for International Settlements

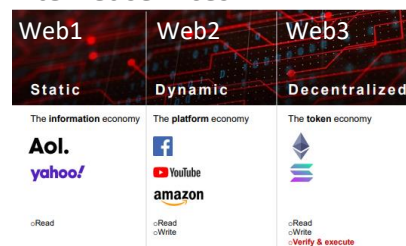
Source: Gaining momentum – Results of the 2021 BIS survey on central bank digital currencies

The emerging Web3 financial market ecosystem resembles the traditional ecosystem



Source: Bain

Web3 – 3rd generation of internet services



Source: Bain

Winning models of new players and the changing flows threaten current financial intermediaries



Getting disconnected from global financial markets



Being disintermediated¹ and reduced to advise business



Outflow of existing clients' assets into digital assets and reduction in fees collected

¹ Remove middlemen and provide goods and services directly

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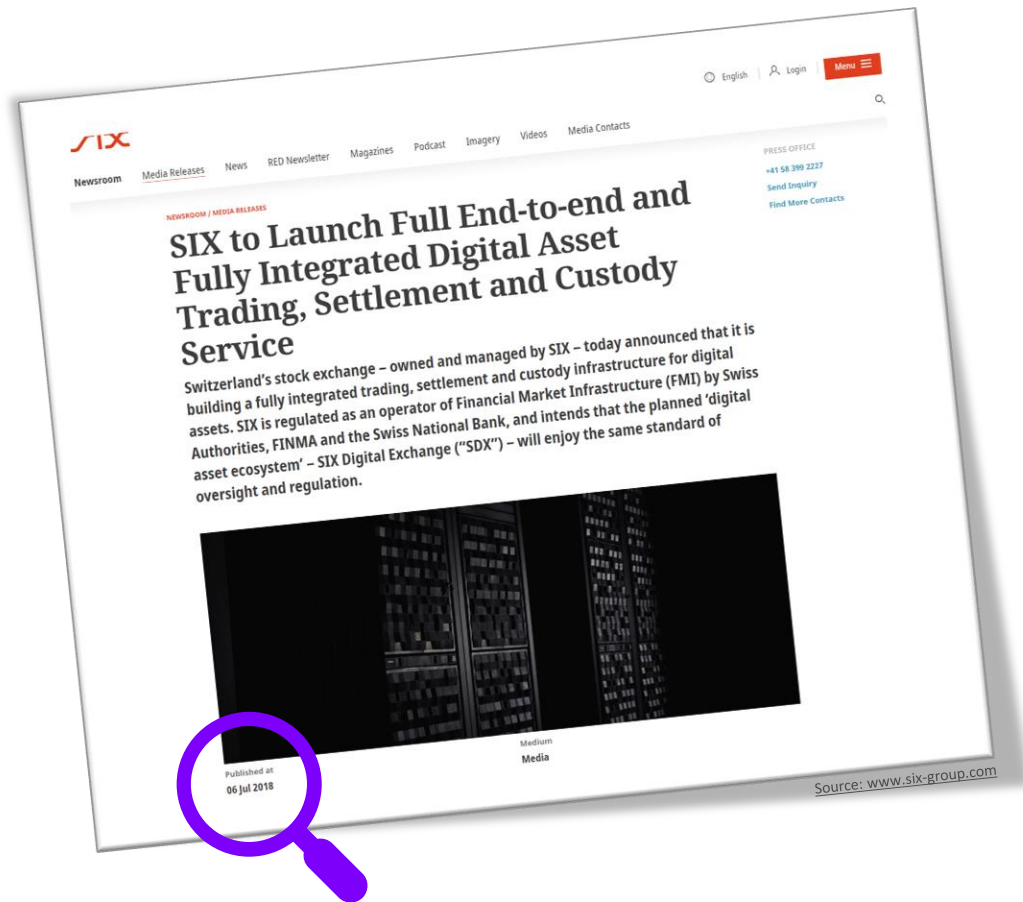
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Occupying the space: the world's first fully regulated Digital Asset Exchange



It will be the first market infrastructure in the world to offer a fully integrated end to end trading, settlement and custody service for digital assets. The service will provide a safe environment for issuing and trading digital assets, and enable the tokenization of existing securities and non-bankable assets to make previously untradeable assets tradeable. Following an agile approach to meet the needs of today's dynamic environment, the first services will be rolled out in mid-2019.

According to Thomas Zeeb, Head Securities & Exchanges, SIX, "The digital space currently faces a number of key challenges. These include the absence of regulation that ensures official safety, security, stability, transparency and accountability – all of which contribute to a lack of trust. The challenge is less in the trading of assets but rather in the custody and asset servicing, including asset safety. Do you adopt a model with many sub-custodians, including inefficient interfaces and with inherent risks, or do you go with a recognised and regulated infrastructure provider who provides all steps of the chain in an integrated and secure model? We believe that the latter has significant value. As the stock exchange infrastructure for Switzerland, we know what it takes to build and run mission-critical and scalable, systemically important services."

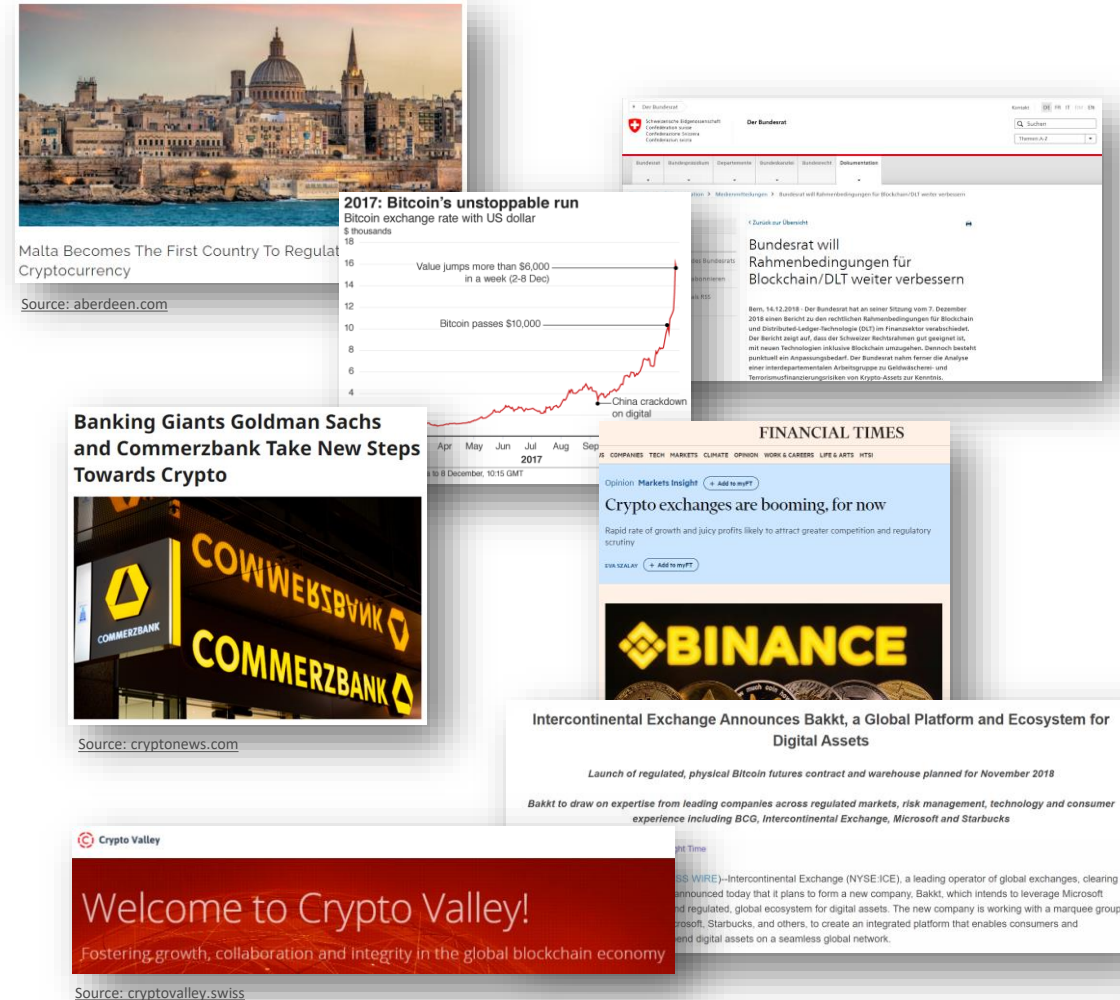
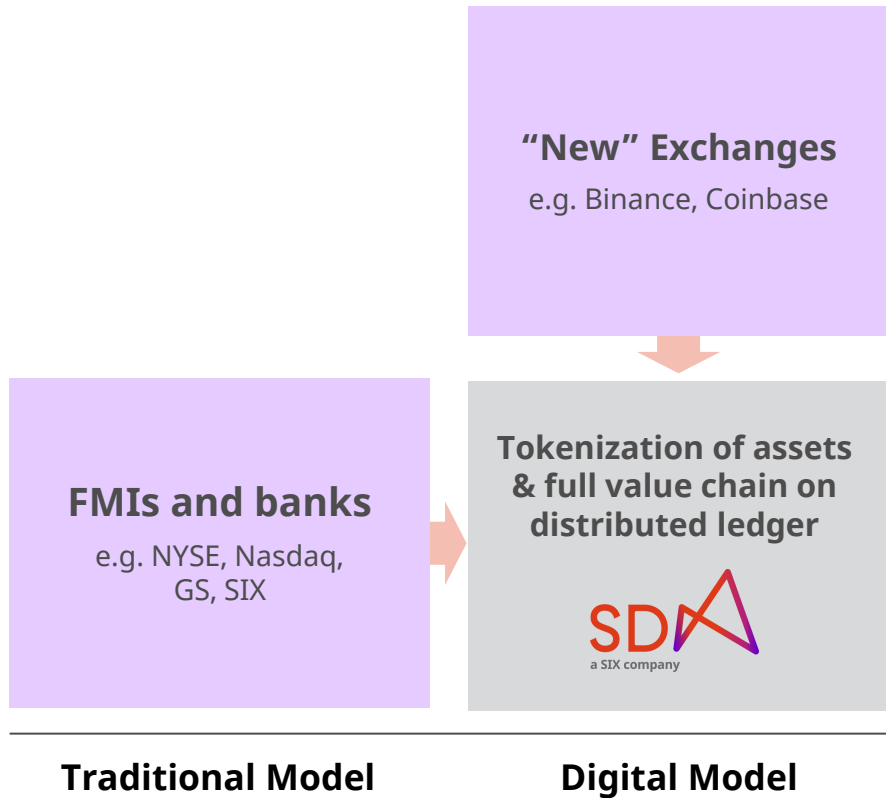
Driven by the rise of new technology and related market developments

Crypto Assets

Traditional Assets

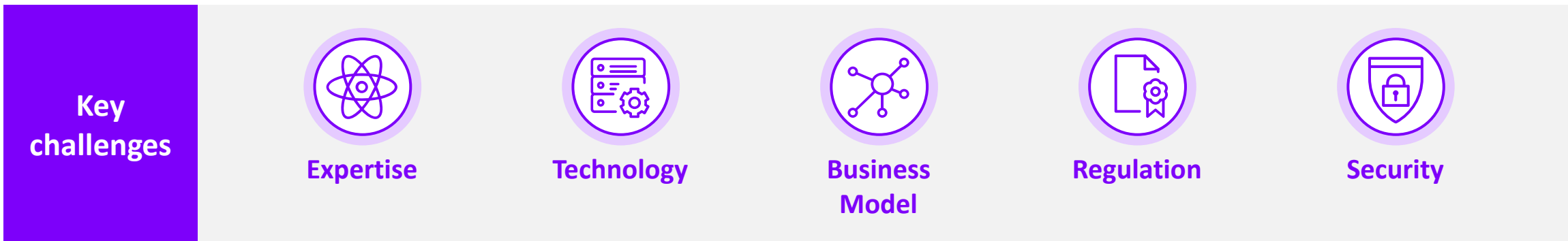
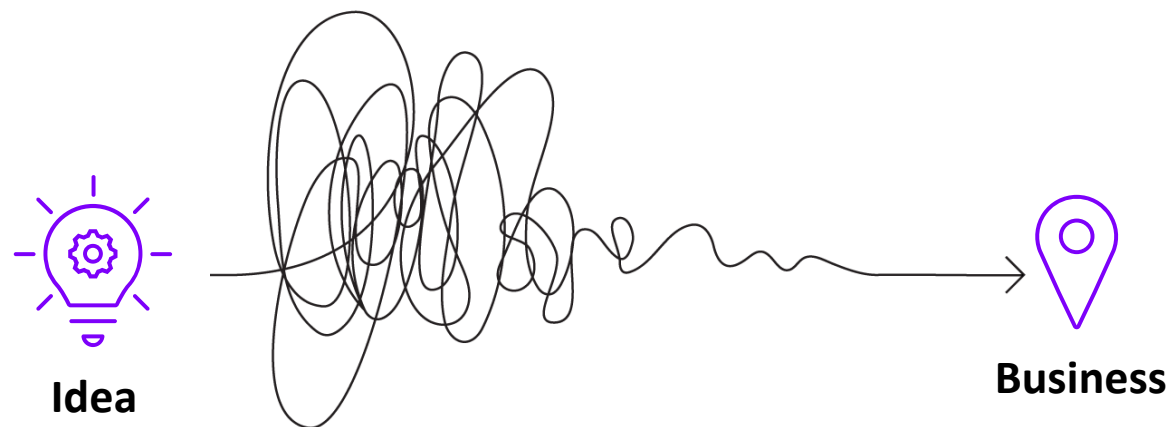
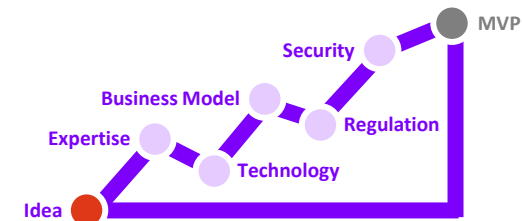
Little / No Regulation

Regulated

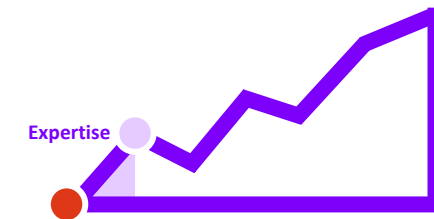


Innovation journey isn't a straight path

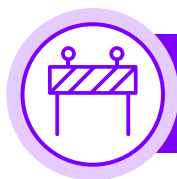
5 key challenges and how we addressed them



Do we have right and sufficient talents to succeed?



Human Capital is the greatest asset of a company!



Key Challenges



Scaling the organization



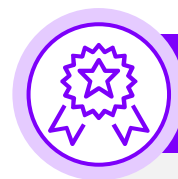
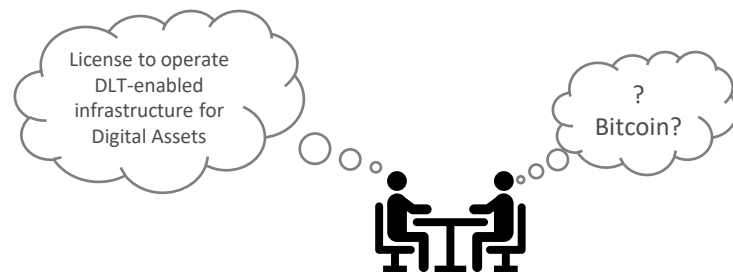
Innovation mindset



Attracting & **retaining** talents



Educating internal and external stakeholders



Key Success Factors



Attractive employer



Design thinking

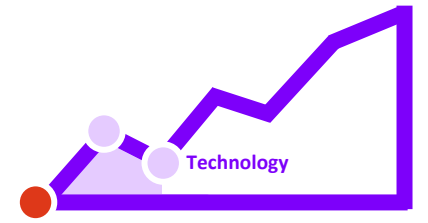


(Global) sourcing strategy



Collaboration with academia

How can nascent technology and mature, highly regulated markets come together?



2018

Technology Selection

2019

Prototyping

2020

Hardening / Auditing

2021

Platform Operation

2022

Continuous enhancements



Key Challenges



Degree of control and centralization



Compatibility with existing regulations



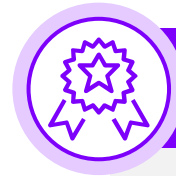
Protocols, Interoperability and Standards



Maturity of Technology



Performance & Scalability



Key Success Factors



Use DLT judiciously

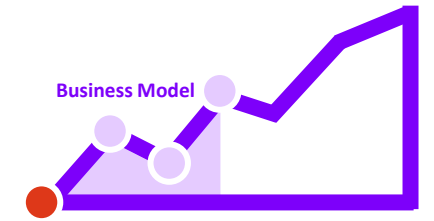


Avoid protocol lock-in



Avoid premature optimization

Not falling into the trap of the Innovator's Dilemma when deciding about the business model



Key Challenges



Evolution vs Revolution




Replicating existing processes



“Cold-Start”-Problem

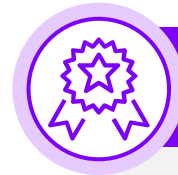
Coop quits online marketplace Siroop
 > May 2, 2018 by Ecommerce News. About [Marketplaces](#) with tags [Switzerland](#). 12388 views.

Siroop will cease to exist. The Swiss online marketplace was acquired by co-owner Coop last month, but the retail company has now confirmed it will pull the plug on Siroop at the end of this year.



Back in 2016, Swisscom and Coop launched a new online marketplace under the name [Siroop](#). Its aim was to become a serious competitor to Amazon, but that never really got off the ground. In fact, Coop has now revealed it will discontinue the online marketplace. The retailer's spokesman Urs Meier confirmed this at the request of news agency SDA after a report by [20min.ch](#).

Source: www.ecommercenews.eu



Key Success Factors



Stakeholder Management



Ecosystem Play

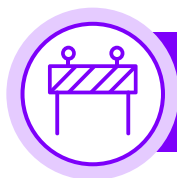
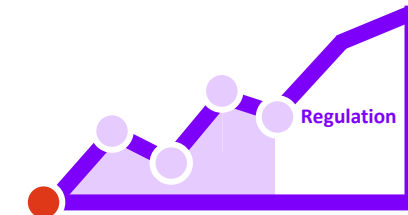


Target radical or disruptive innovation



Foster innovation outside RUN organization

When regulation and legislation lag behind emerging technologies



Key Challenges



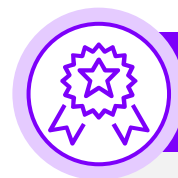
Regulatory uncertainty



Lacking international harmonization



“Overregulation”



Key Success Factors



Actively drive regulatory development



Principle of “technology neutrality”

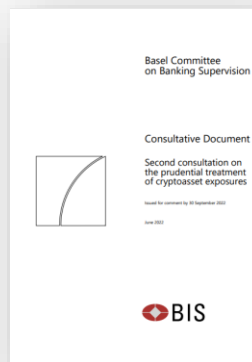


Principle of “same risk, same activity, same treatment”

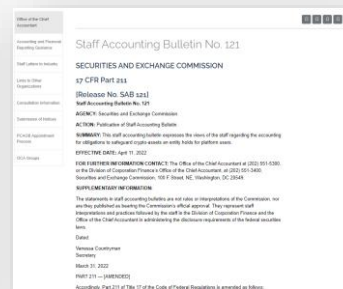


Switzerland has one of the world most advanced regulatory framework: Blockchain act adapted existing financial regulations to crypto and the Distributed Ledger Technology act to allow blockchain platforms to issue ledger-based securities and exchanges to trade these securities

Examples: upcoming regulations



Source: www.bis.org



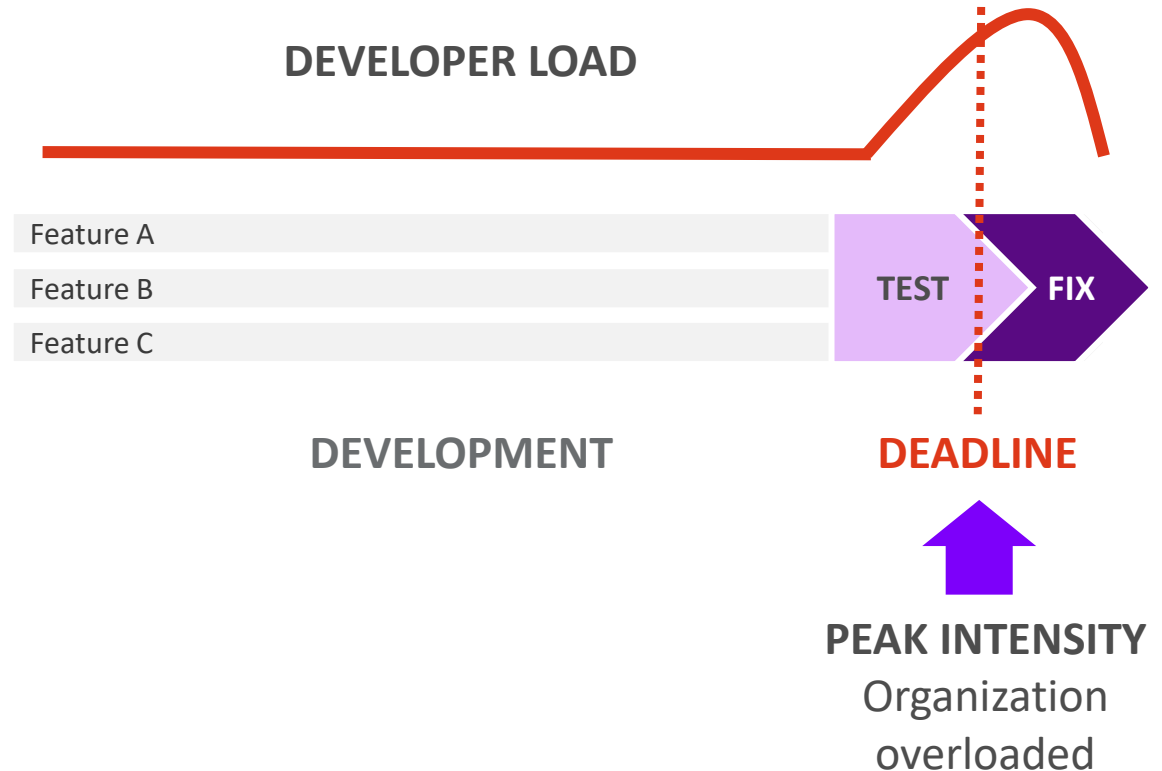
Source: www.sec.gov

Security Testing – Traditional Model

Penetration tests are rare, one-off events at end of development



- Compliance driven security
- Designed for big monolithic artifacts
- Pen-testing **disconnected** from development



LATE TESTING



- No reduction of uncertainty
- Overload to address findings
- High risk of project delay

Security Testing – Traditional Model

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LATE TESTING

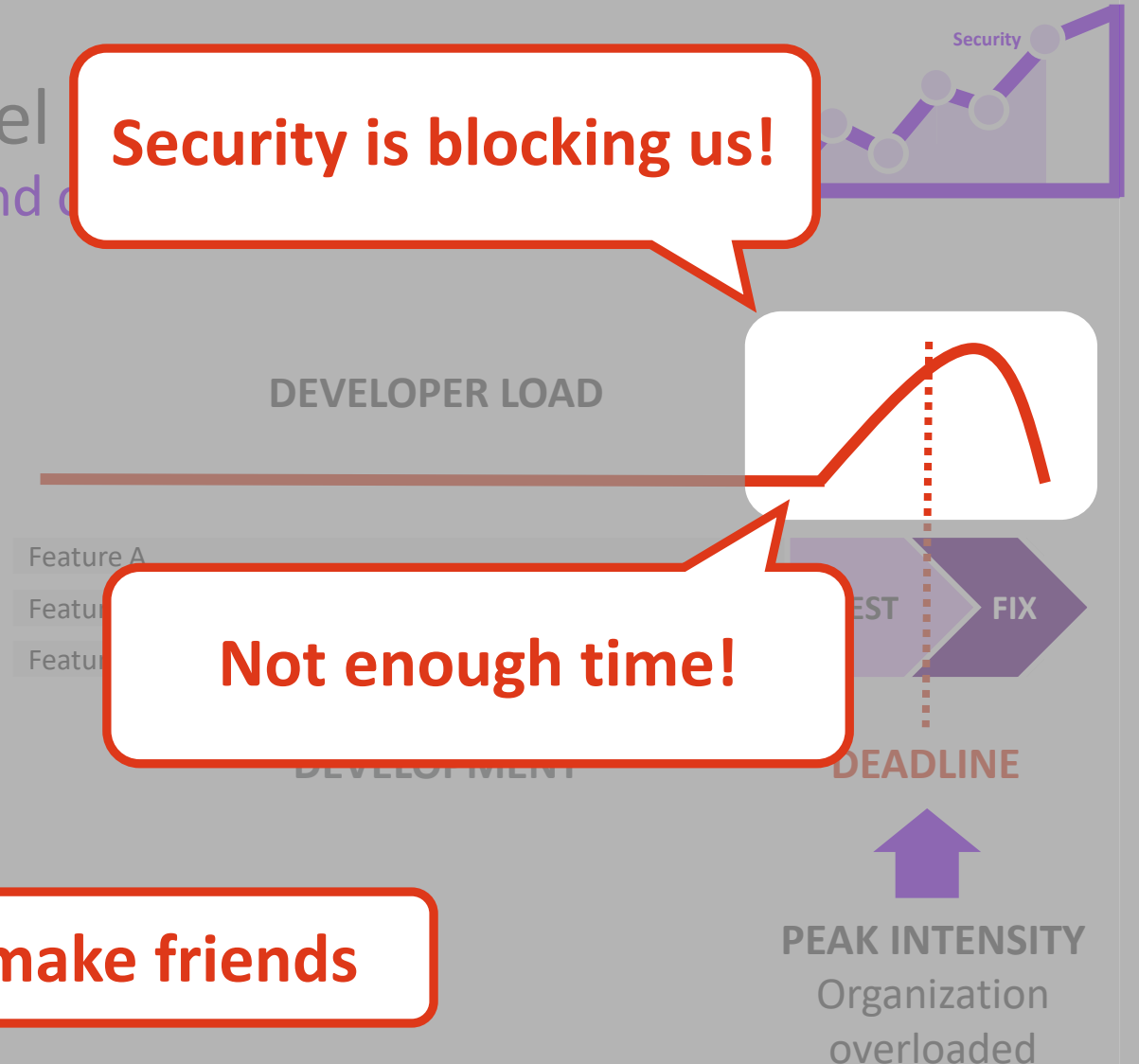
- No reduction of **uncertainty**
- **Overload** to address security
- High risk of **project delay**

Bad way to make friends

Security is blocking us!

Not enough time!

PEAK INTENSITY
Organization overloaded

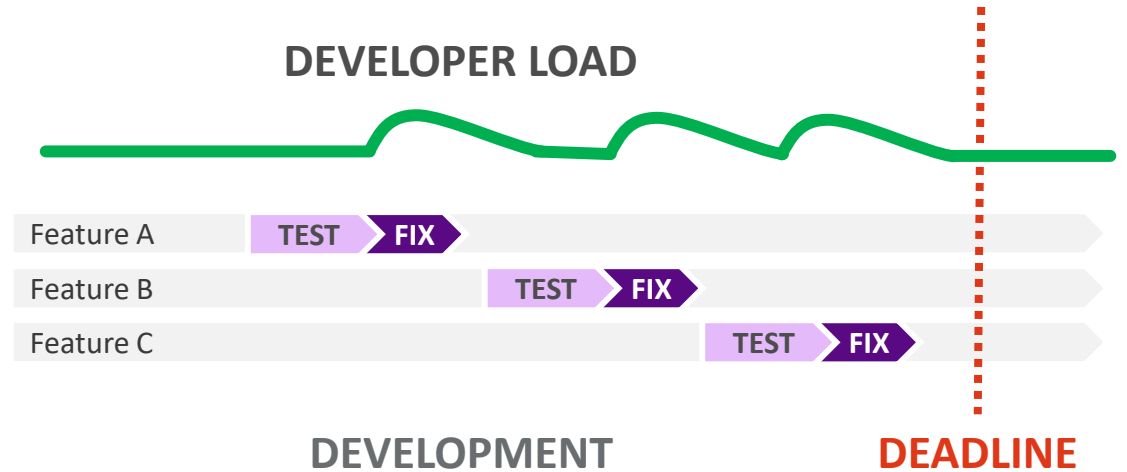


Security Testing – New Model

Agile environments require a novel approach



- Agile and continuous testing
- Pen-testing integrated in development
- Early validation of assumptions



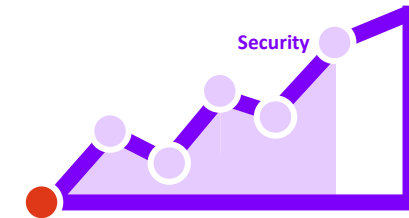
EARLY & CONTINUOUS TESTING



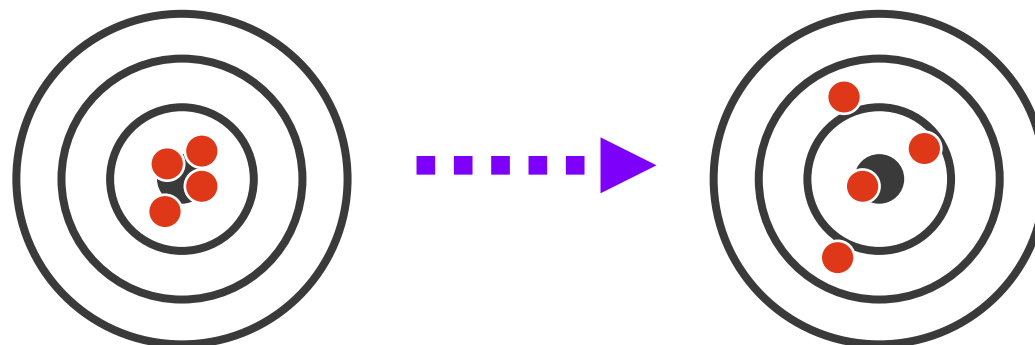
- Test new function when ready
- Early reduction of uncertainty
- Buy time to learn and fix



New Thinking Pattern

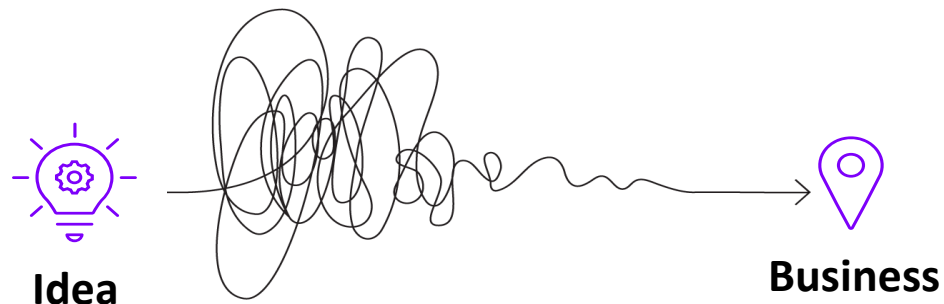
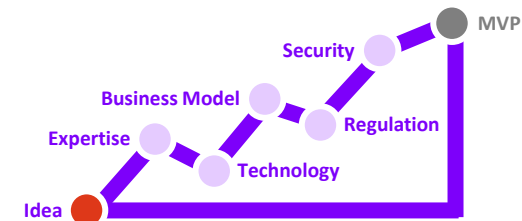


- 1 **Approximately right today >> Precisely right tomorrow**
- 2 **Imprecise & often >> Precise & rare**



Innovation journey isn't a straight path

5 key challenges and **how we addressed them**



Key Challenges

Expertise

Technology

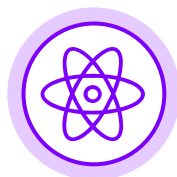
Business Model

Regulation

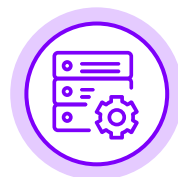
Security



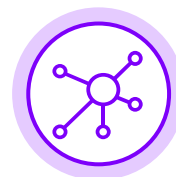
Key success factors



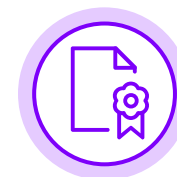
Educate, educate, educate



Avoid lock-in and use DLT judiciously



Focus on "disruptive innovation"



Close collaboration with Regulator



Early and continuous testing

01

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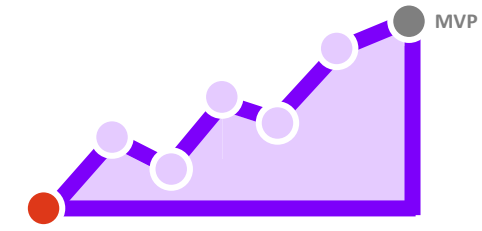
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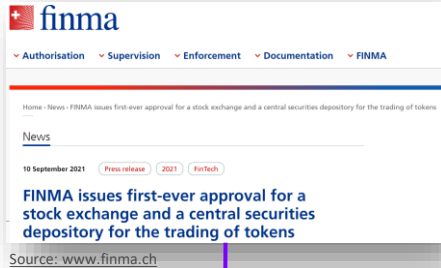


Resulting in the successful launch of world's first fully regulated DLT-enabled Digital Asset Exchange

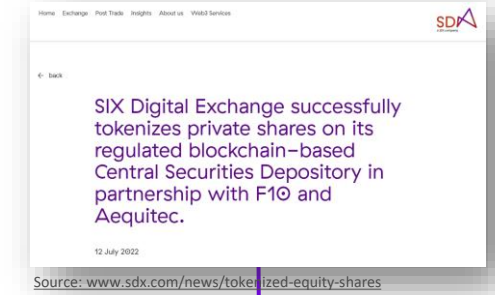
Issued Digital Bond



Received FINMA licenses



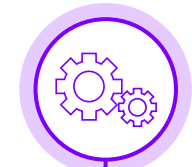
First Private Equity Issuance



Partnered with FQX

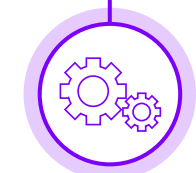


Onboarded CM-Equity



2021

2022



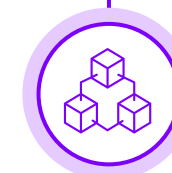
Onboarded first 3 clients



Completed CBDC projects with SNB and Banque de France



Partnered with Daura, Aequitec, Aktionariat



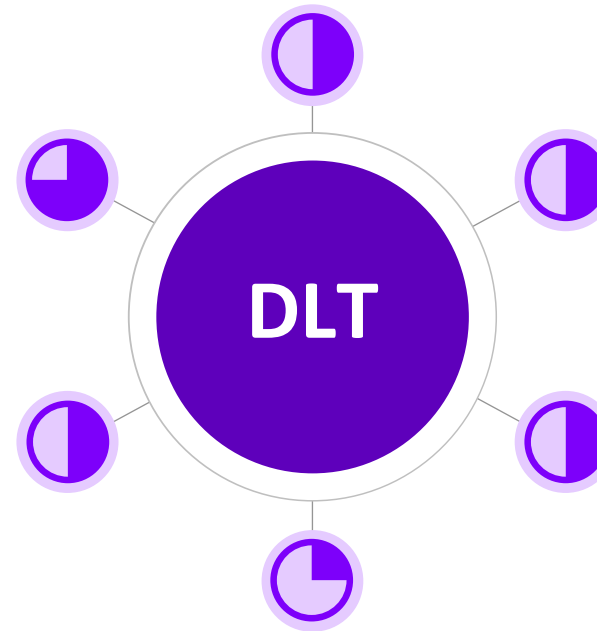
Established SDX Web3 Services



Partnered with Fireblocks

Moment of truth: Was SDX able to deliver the value add of the Distributed Ledger Technology promise?

Shared source of truth across multiple parties – no more silos. Starting from the securities registry *(WEF/BofA)*



Tokenization for faster and lower cost asset transfer and increased liquidity for niche markets *(WEF)*

Peer-to-peer structure reducing intermediaries leading lower cost *(Bundesbank)*

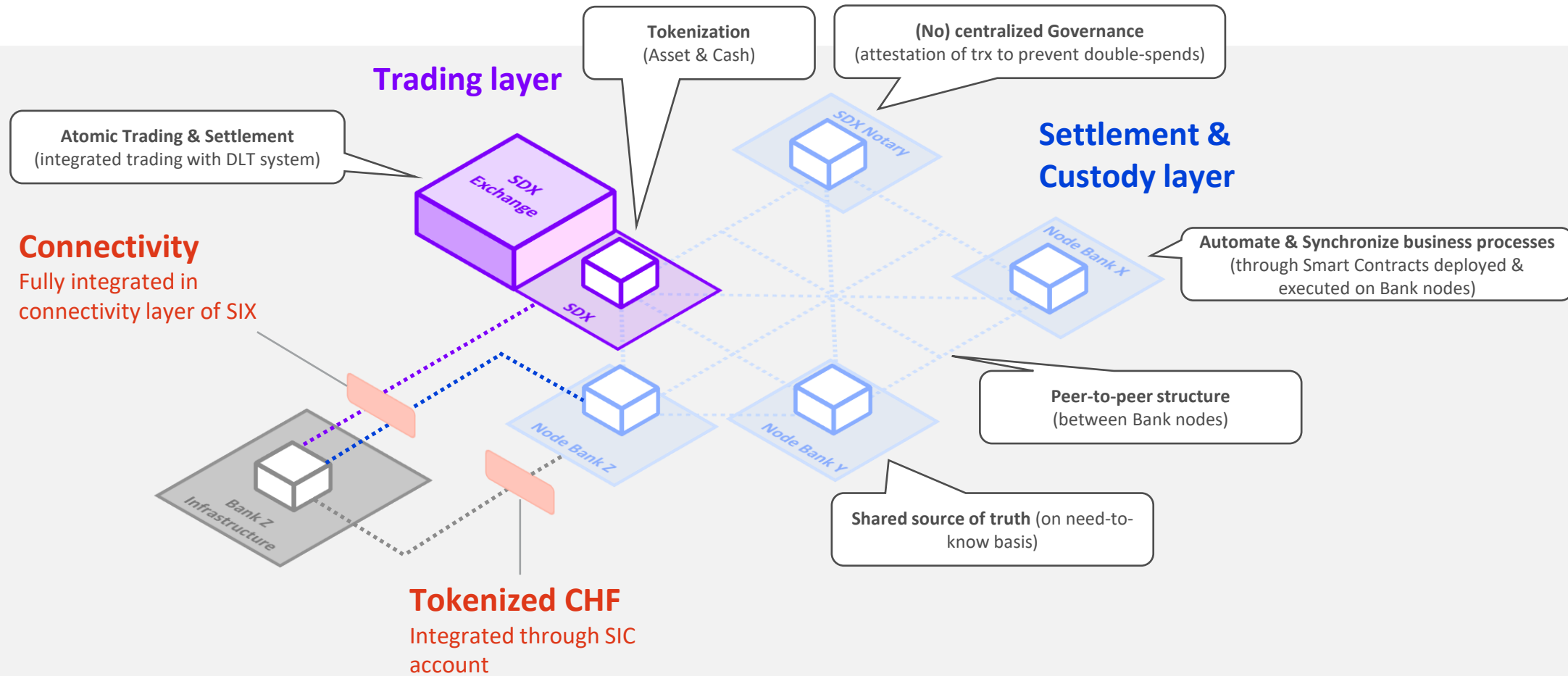
No centralized Governance needed as trust is given within the network *(Bitcoin/Ethereum)*

Atomic Trading & Settlement reducing counterparty and settlement risk due *(KPMG)*

Automate & Synchronize business processes such as corporate actions across entities using smart contracts. Reduce manual interventions, risk, cost. *(WEF/Bundesbank)*

barely partially largely

The CSD and Exchange form the heart of the new ecosystem and make key innovations immediately available to participants



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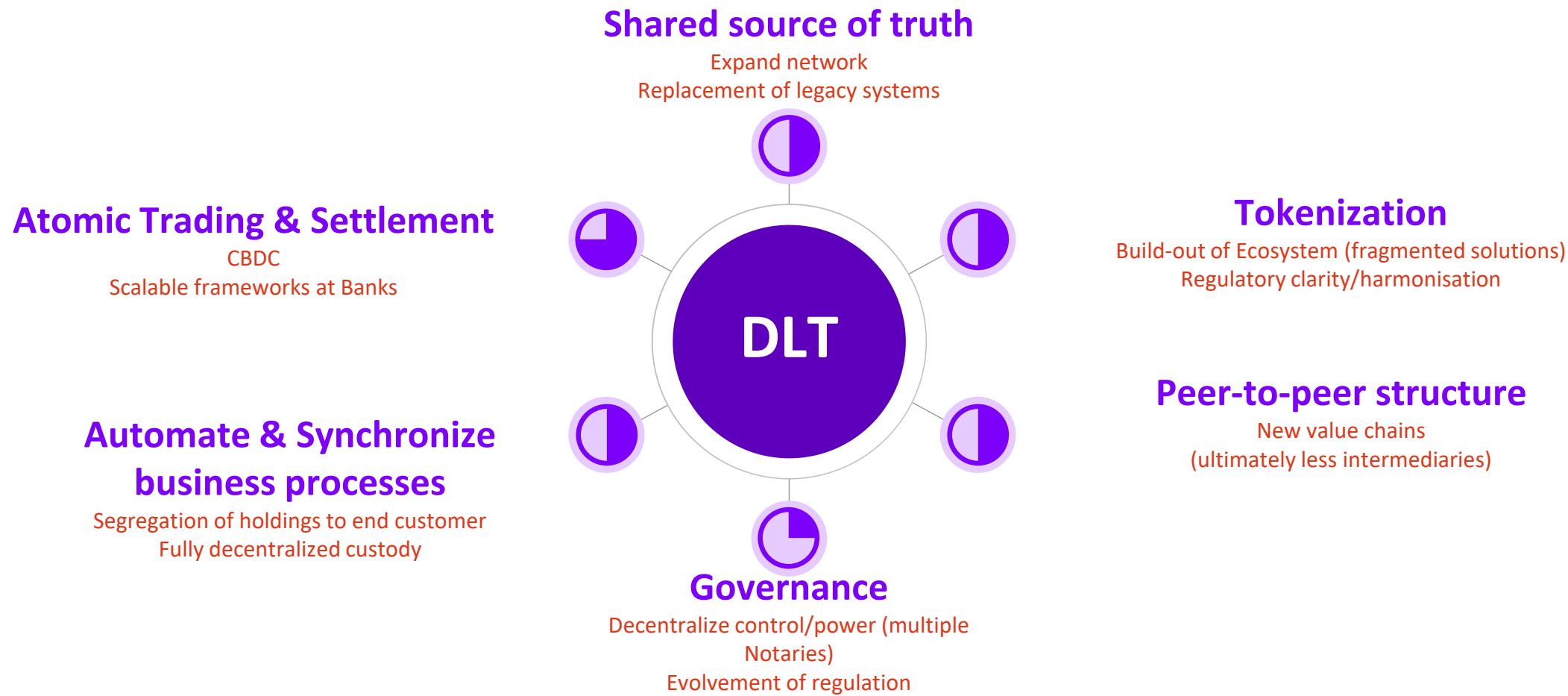
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Not yet there...

Key levers to leverage the full potential of DLT within financial industry



However, SDX is working on it to become a reality!

3 pillars strategy to grow SDX' digital securities business, develop Web3 services and explore non-traditional asset classes

Grow

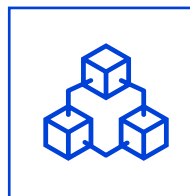


Securities

Digital Bonds & Digital Equities

Leading regulated marketplace & the future SIX Group infrastructure

Develop



Web3 Services

World Wide Web 3.0 based on public blockchain technology and decentralized applications. Initial focus on digital assets custody and non-custodial staking

Explore



Marketplaces for Non-Traditional Assets

New DLT-based business models for non-traditional assets

Thank you